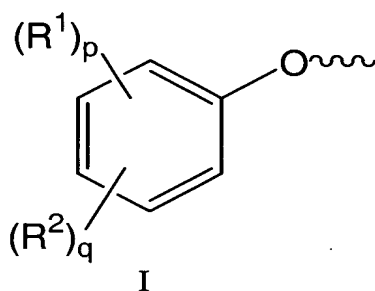


WHAT IS CLAIMED IS:

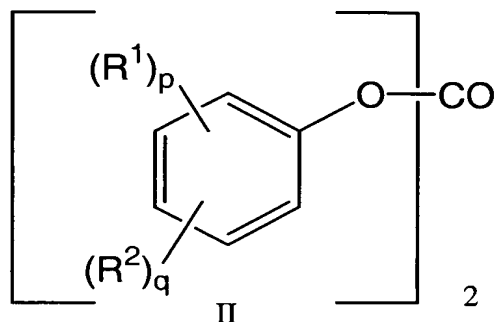
[c01] A method of preparing block copolymers, said method comprising contacting a partially crystalline polycarbonate starting material (A) comprising activated terminal aryloxy groups with at least one polymeric species (B) comprising reactive terminal hydroxy groups under solid state polymerization conditions to afford a product block copolymer.

[c02] A method according to claim 1 wherein said partially crystalline polycarbonate starting material (A) comprises terminal aryloxy groups having structure I



wherein R^1 is independently at each occurrence a C_1 - C_{20} aliphatic radical, C_4 - C_{20} cycloaliphatic radical, C_4 - C_{20} aromatic radical; R^2 is independently at each occurrence a halogen atom, nitro group, cyano group, C_1 - C_{20} alkoxy carbonyl group, C_1 - C_{20} acyl group, C_4 - C_{20} cycloalkoxy carbonyl group, C_6 - C_{20} aryloxy carbonyl group, C_1 - C_{20} alkylaminocarbonyl group, C_2 - C_{40} dialkylaminocarbonyl group, or a C_1 - C_{20} perfluoroalkyl group; p is an integer having a value 0 to 4, and q is an integer having a value of 1 to 5.

[c03] A method according to claim 1 wherein said partially crystalline polycarbonate starting material (A) comprises structural units derived from at least one dihydroxy aromatic compound and at least one diaryl carbonate II

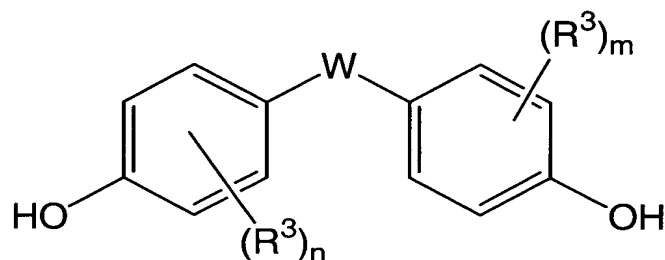


wherein R^1 is independently at each occurrence a C_1 - C_{20} aliphatic radical, C_4 - C_{20} cycloaliphatic radical, C_4 - C_{20} aromatic radical; R^2 is independently at each occurrence a halogen atom, nitro group, cyano group, C_1 - C_{20} alkoxycarbonyl group, C_1 - C_{20} acyl group, C_4 - C_{20} cycloalkoxycarbonyl group, C_6 - C_{20} aryoxycarbonyl group, C_1 - C_{20} alkylaminocarbonyl group, C_2 - C_{40} dialkylaminocarbonyl group, or a C_1 - C_{20} perfluoroalkyl group; p is an integer having a value 0 to 4, and q is an integer having a value of 1 to 5.

[c04] A method according to claim 3 wherein diaryl carbonate II is selected from the group consisting of bis(2-methoxycarbonylphenyl) carbonate, bis(2-ethoxycarbonylphenyl) carbonate, bis(2-butoxycarbonylphenyl) carbonate, and bis(2,4,6-trifluorophenyl) carbonate.

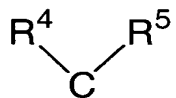
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[c05] A method according to claim 3 wherein said dihydroxy aromatic compound is a bisphenol having structure III



III

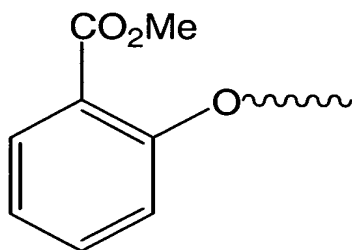
wherein R³ is independently at each occurrence a halogen atom, nitro group, cyano group, C₁-C₂₀ alkyl group, C₄-C₂₀ cycloalkyl group, or C₆-C₂₀ aryl group; n and m are independently integers 0-4; and W is a bond, an oxygen atom, a sulfur atom, a SO₂ group, a C₁-C₂₀ aliphatic radical, a C₆-C₂₀ aromatic radical, a C₆-C₂₀ cycloaliphatic radical or the group



wherein R⁴ and R⁵ are independently a hydrogen atom, C₁-C₂₀ alkyl group, C₄-C₂₀ cycloalkyl group, or C₄-C₂₀ aryl group; or R⁴ and R⁵ together form a C₄-C₂₀ cycloaliphatic ring which is optionally substituted by one or more C₁-C₂₀ alkyl, C₆-C₂₀ aryl, C₅-C₂₁ aralkyl, C₅-C₂₀ cycloalkyl groups or a combination thereof.

[c06] A method according to claim 1 wherein said partially crystalline polycarbonate starting material (A) comprises 2-methoxycarbonylphenoxy terminal aryloxy groups IV

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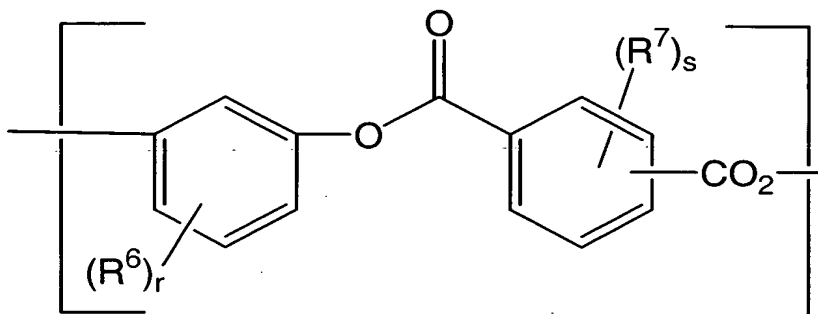
IV

and structural units derived from bisphenol A.

[c07] A method according to claim 1 wherein said polymeric species (B) comprising reactive terminal hydroxy groups is selected from the group consisting of polyesters, polycarbonates, polyethers, polyetherketones, polyethersulfones, and polyetherimides.

[c08] A method according to claim 1 wherein said polymeric species (B) comprising reactive terminal hydroxy groups comprises structural units selected from the group consisting of

(1) polyester structural units corresponding to structure V

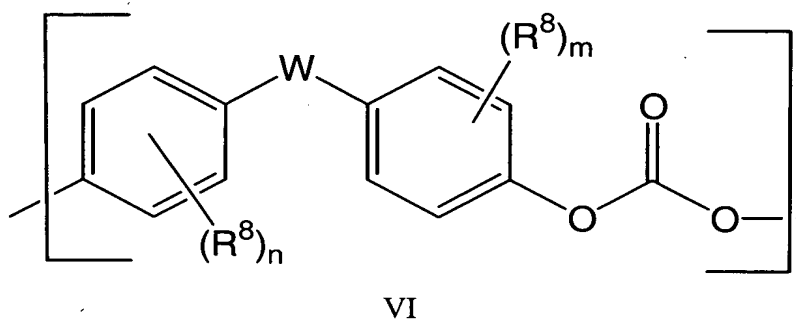


V

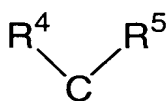
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wherein R^6 and R^7 are independently at each occurrence a halogen atom, C_1 - C_{20} aliphatic radical, C_4 - C_{20} cycloaliphatic radical, or a C_4 - C_{20} aromatic radical, and r and s are independently integers having values from 0 to 4; and

(2) polycarbonate structural units corresponding to structure VI



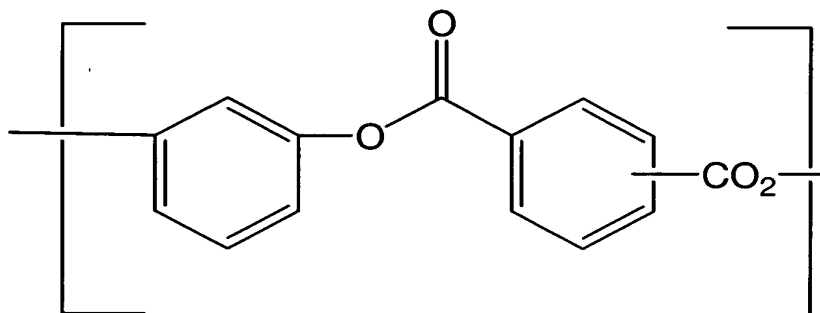
wherein R^8 is independently at each occurrence a halogen atom, nitro group, cyano group, C_1 - C_{20} alkyl group, C_4 - C_{20} cycloalkyl group, or C_6 - C_{20} aryl group; n and m are independently integers 0-4; and W is a bond, an oxygen atom, a sulfur atom, a SO_2 group, a C_1 - C_{20} aliphatic radical, a C_6 - C_{20} aromatic radical, a C_6 - C_{20} cycloaliphatic radical or the group



wherein R^4 and R^5 are independently a hydrogen atom, C_1 - C_{20} alkyl group, C_4 - C_{20} cycloalkyl group, or C_4 - C_{20} aryl group; or R^4 and R^5 together form a C_4 - C_{20} cycloaliphatic ring which is optionally substituted by one or more C_1 - C_{20} alkyl, C_6 - C_{20} aryl, C_5 - C_{21} aralkyl, C_5 - C_{20} cycloalkyl groups or a combination thereof.

[c09] A method according to claim 8 wherein said polymeric species (B) comprising reactive hydroxy groups is a polyester comprising structural units VII

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VII

and having a degree of polymerization of at least about 4.

[c10] A method according to claim 1 wherein said partially crystalline polycarbonate starting material (A) has a percent endcap between about 50 and about 100 percent.

[c11] A method according to claim 1 wherein starting material (B) is a copolymer prepared by heating in the absence of a catalyst, a mixture comprising resorcinol, diphenyl terephthalate, diphenyl isophthalate, and a catalyst.

[c12] A method according to claim 11 wherein said diphenyl terephthalate and said diphenyl isophthalate have a molar ratio, said molar ratio being in a range between about 1 to 10 and about 10 to 1.

[c13] A method according to claim 1 wherein starting material (B) is a copolymer prepared by interfacial polymerization of resorcinol with terephthaloyl dichloride and isophthaloyl dichloride.

[c14] A method according to claim 13 wherein said terephthaloyl dichloride and said isophthaloyl dichloride have a molar ratio, said molar ratio being in a range between about 1 to 10 and about 10 to 1.

[c15] A method according to claim 1 wherein starting material (A) has a crystallinity in a range between about 15 and about 40 percent.

[c16] A method according to claim 1 wherein said solid state polymerization conditions comprise heating at a temperature between about 100°C about 240°C for a period of between about 1 and about 10 hours.

[c17] A method according to claim 1 further comprising preparing a mixture of starting materials (A) and (B).

[c18] A method according to claim 17 comprising dry mixing starting material (A) with starting material (B).

[c19] A method according to claim 17 comprising precipitating a mixture of starting materials (A) and (B) from solution.

[c20] A method according to claim 1 wherein starting materials (A) and (B) have a weight ratio in a range between about 0.01 and about 100 grams starting material (A) per gram starting material (B).

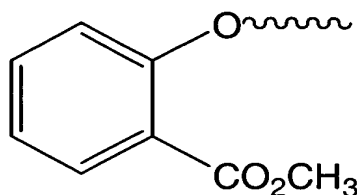
[c21] A method according to claim 1 wherein the product copolymer has a measurable degree of blockiness corresponding to blocklengths which are at least 50 percent longer than the corresponding random distribution of structural elements.

[c22] A molded article comprising the product copolymer prepared by the method of claim 1.

[c23] An article according to claim 22 which is a multilayer article.

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[c24] A method of preparing copolyestercarbonates, said method comprising contacting a partially crystalline bisphenol A polycarbonate comprising terminal 2-methoxycarbonyl phenoxy end groups IV



IV

with at least one polyester comprising reactive hydroxyl groups under solid state polymerization conditions to afford a product copolyestercarbonate.

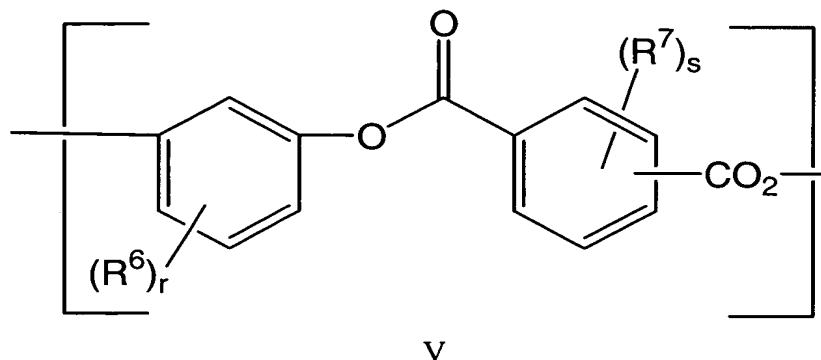
[c25] A method according to claim 24 wherein said partially crystalline bisphenol A polycarbonate is prepared by a method comprising melt reaction of bis(methyl salicyl) carbonate with bisphenol A .

[c26] A method according to claim 25 wherein said melt reaction affords a partially crystalline bisphenol A polycarbonate directly.

[c27] A method according to claim 26 wherein said partially crystalline bisphenol A polycarbonate has a percent endcap of between about 50 and about 100 percent.

[c28] A method according to claim 26 wherein said melt reaction affords an amorphous bisphenol A polycarbonate having a percent endcap between about 90 and about 100 percent.

[c29] A method according to claim 25 wherein said polyester comprises structural units corresponding to structure V



wherein R^6 and R^7 are independently at each occurrence a halogen atom, C_1 - C_{20} aliphatic radical, C_4 - C_{20} cycloaliphatic radical, or a C_4 - C_{20} aromatic radical, and r and s are independently integers having values from 0 to 4.

[c30] A method according to claim 29 wherein said polyester is a polyester prepared by heating in the absence of a catalyst, a mixture comprising resorcinol, diphenyl terephthalate, diphenyl isophthalate, and a catalyst.

[c31] A method according to claim 30 wherein said diphenyl terephthalate and said diphenyl isophthalate have a molar ratio, said molar ratio being in a range between about 1 to 10 and about 10 to 1.

[c32] A method according to claim 29 wherein said polyester is prepared by a method comprising the interfacial reaction of resorcinol with a mixture of isophthaloyl dichloride and terephthaloyl dichloride.

[c33] A method according to claim 32 wherein said isophthaloyl dichloride and said terephthaloyl dichloride have a molar ratio, said molar ratio being in a range between about 1 to 10 and about 10 to 1.

[c34] A method according to claim 25 wherein said partially crystalline bisphenol A polycarbonate has a crystallinity in a range between about 20 and about 40 percent.

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[c35] A method according to claim 25 wherein said solid state polymerization conditions comprise heating at a temperature in a range between about 100 and 240°C for a period between about 2 and about 9 hours.

[c36] A molded article comprising the product copolymer prepared by the method of claim 25.

[c37] An article according to claim 36 which is a multilayer article.